



CLOUD COMPUTING

OPEN ENDED LAB

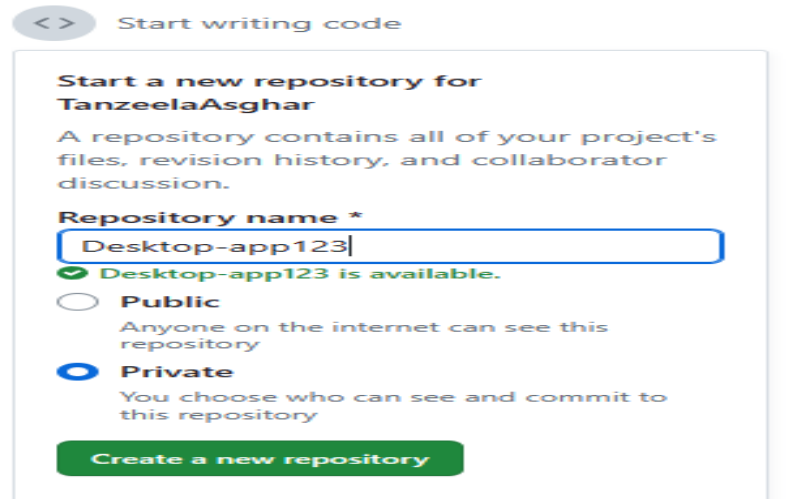
SUBMITTED TO:
SIR SHAHZAD

SUBMITTED BY :
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LAIBA SOHAIL(2021-BSE-016)
TANZEELA ASGHAR(2021-BSE-032)

TASK 1

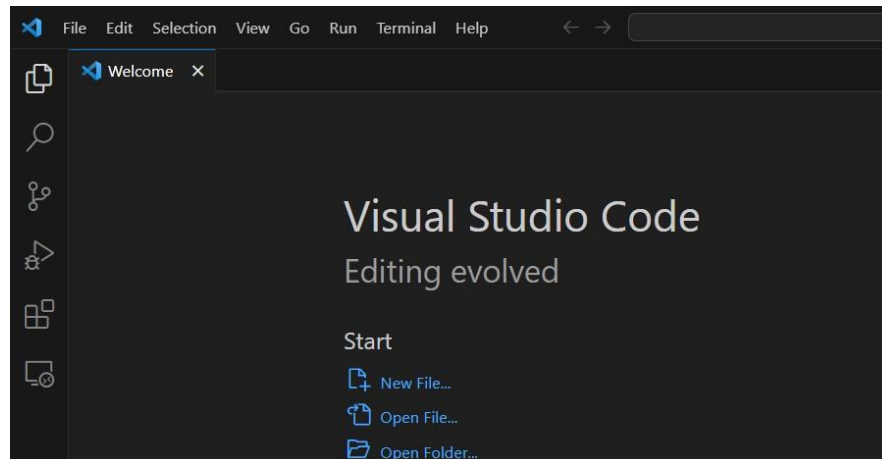
CREATE HELLO WORLD PROGRAM IN PYTHON THROUGH VS CODE

CREATE A GITHUB PROFILE



The screenshot shows the 'Start writing code' dialog in VS Code. It prompts the user to 'Start a new repository for TanzeelaAsghar'. A text box contains 'Desktop-app123', with a green checkmark indicating it is available. Below this, there are two radio button options: 'Public' (described as 'Anyone on the internet can see this repository') and 'Private' (described as 'You choose who can see and commit to this repository'). The 'Private' option is selected. At the bottom is a green button labeled 'Create a new repository'.

INSTALL VISUAL STUDIO CODE



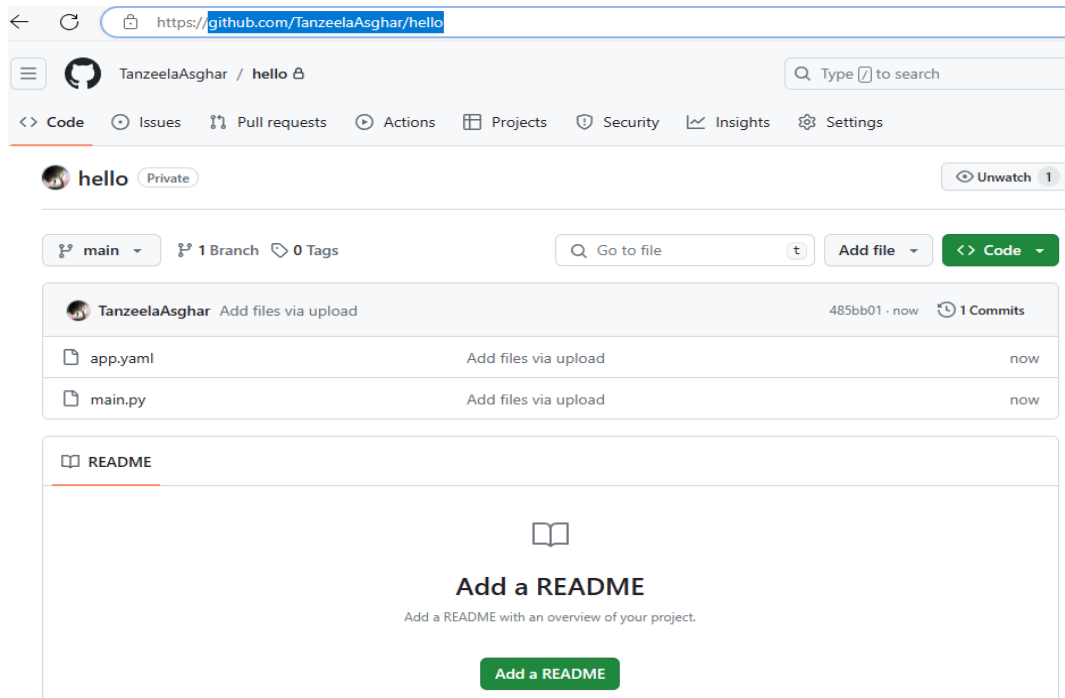
CREATE A REPOSITORY



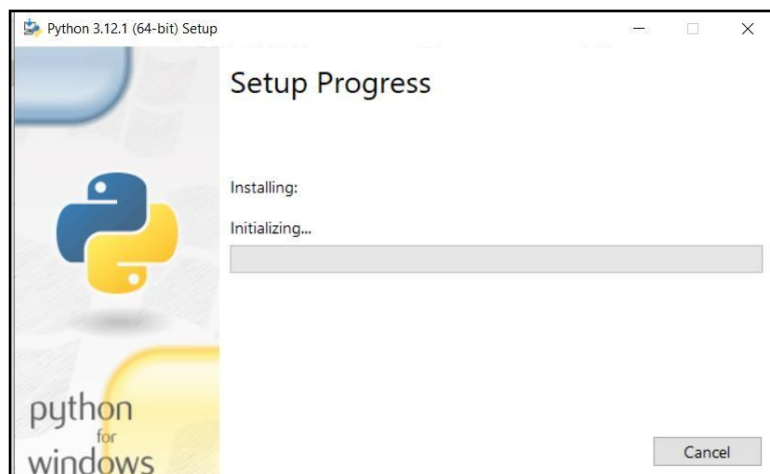
TWO FILES DOWNLOAD

 app	1/8/2024 9:35 AM	Yaml Source File	2 KB
 main	1/8/2024 9:34 AM	Python Source File	2 KB

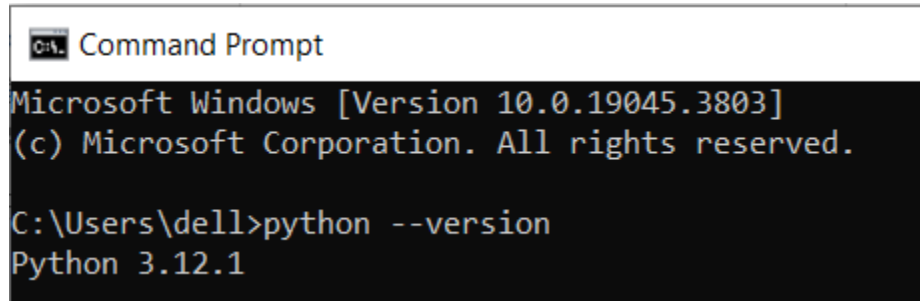
ADD TWO FILES



PYTHON INSTALLATION



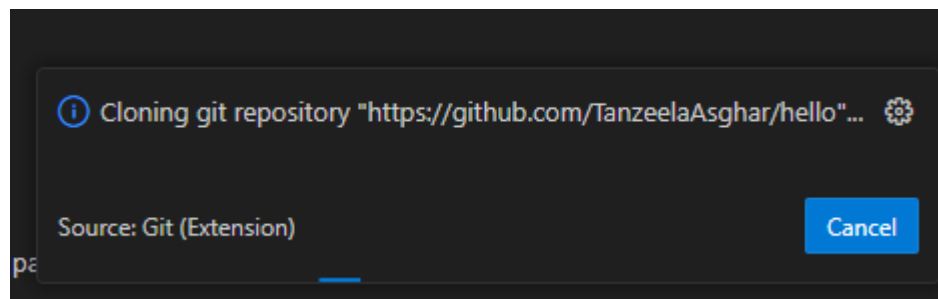
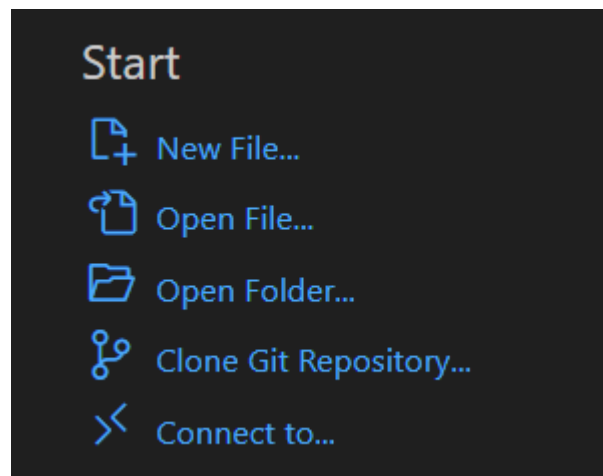
SUCCESSFULLY INSTALLED

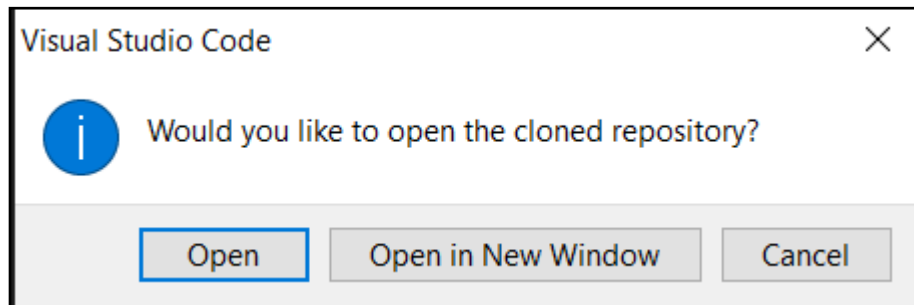


```
Command Prompt
Microsoft Windows [Version 10.0.19045.3803]
(c) Microsoft Corporation. All rights reserved.

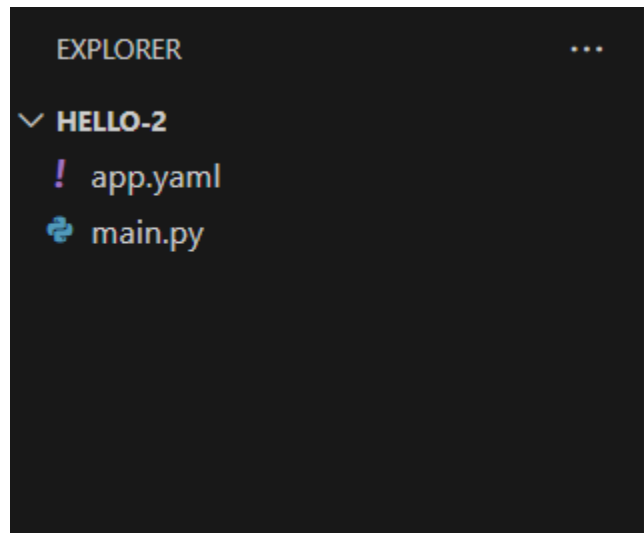
C:\Users\dell>python --version
Python 3.12.1
```

CLONING





AFTER CLONING IN VS CODE



FLASK INSTALLATION

get-pip.py

This is a Python script that uses some bootstrapping logic to install pip.

- Download the script, from <https://bootstrap.pypa.io/get-pip.py>.
- Open a terminal/command prompt, `cd` to the folder containing the `get-pip.py` file and run:

```
Downloading pip-23.3.2-py3-none-any.whl (2.1 MB)  
0.5/2.1 MB 11.2 kB/s eta 0:02:23
```

SUCCESSFULLY INSTALLED

```
C:\Users\dell>pip --version
pip 23.3.2 from C:\Users\dell\AppData\Roaming\Python\Python312\site-packages\pip (python 3.12)

C:\Users\dell>
```

EXECUTE THE PYTHON FILE

```
from flask import Flask

app = Flask(__name__)

@app.route("/")
def hello() -> str:
    """Return a friendly HTTP greeting.

    Returns:
        A string with the words 'Hello World!'.
    """
    return "Hello World! This is open ended lab of Cloud Computing"

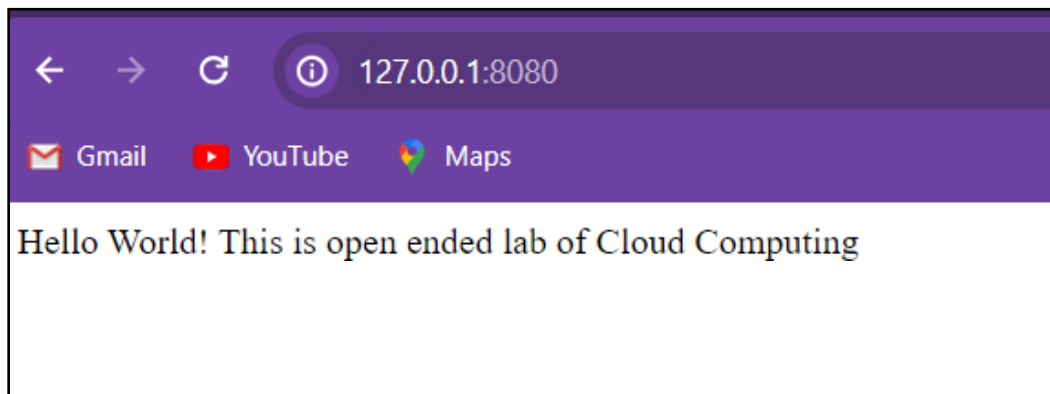
if __name__ == "__main__":
    # This is used when running locally only. When deploying to Google App
    # Engine, a webserver process such as Gunicorn will serve the app.
    app.run(host="127.0.0.1", port=8080, debug=True)
# [END gae_flex_quickstart]
```

[CLOUD COMPUTING LAB]

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\dell\Downloads> c::; cd 'c:\Users\dell\Downloads'; & 'C:\Program Files\Python312\python.exe' 'c:\Users\dell\
-2023.22.1\pythonFiles\lib\python\debugpy\adapter\..\..\debugpy\launcher' '57955' '--' 'C:\Users\dell\Downloads\main.py'
* Serving Flask app 'main'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:8080
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 115-876-169
127.0.0.1 - - [10/Jan/2024 00:16:40] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [10/Jan/2024 00:16:41] "GET /favicon.ico HTTP/1.1" 404 -
█
```

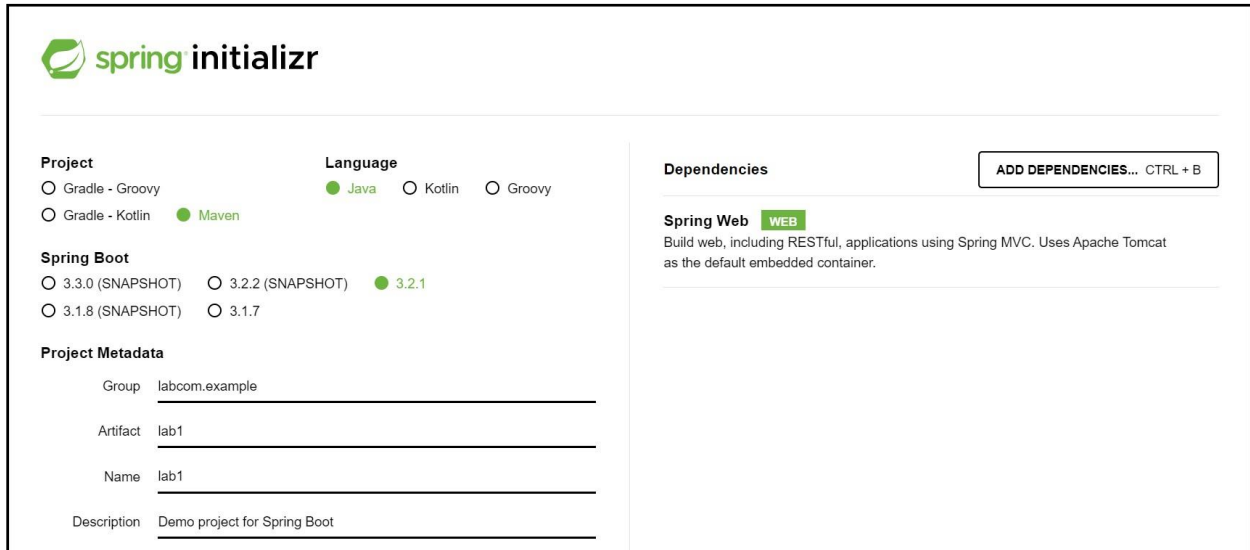
COPY THE IP AND PASTE ON WEB BROWSER



TASK 2

RUN A WEB APPLICATION (JAVA/PYTHON) USING GOOGLE APP ENGINE (GAE)
LAUNCHER

SPRING BOOT USING SPRING INITIALIZR



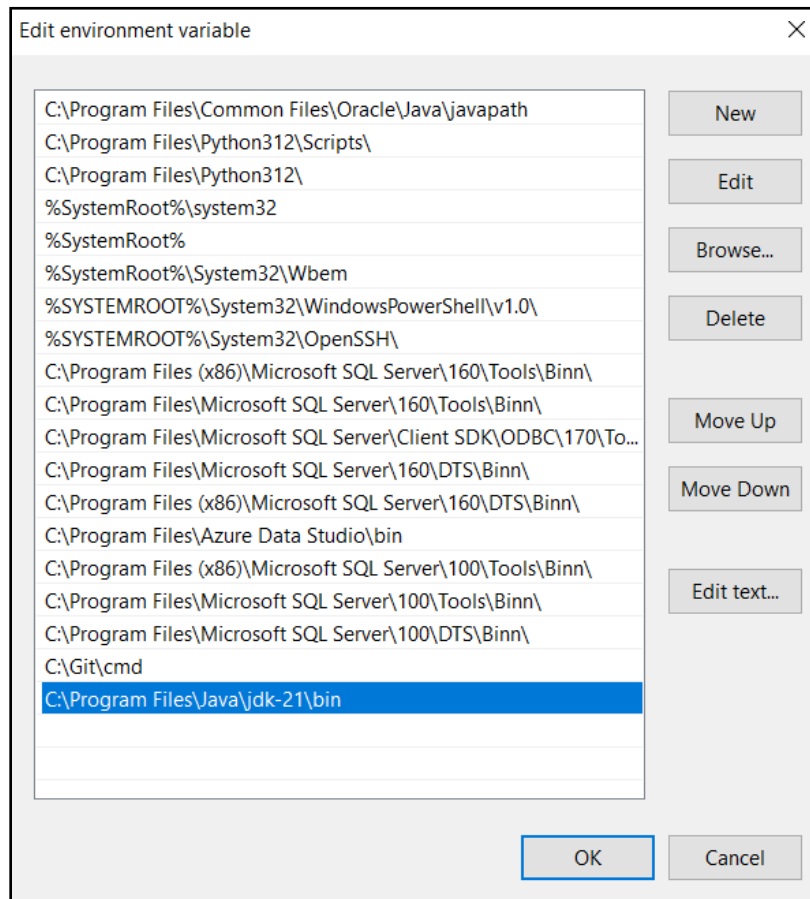
The image shows the Spring Initializr web application interface. It features a logo at the top left and several sections for configuring a project:

- Project:** Radio buttons for `Gradle - Groovy`, `Gradle - Kotlin`, and `Maven` (selected).
- Language:** Radio buttons for `Java` (selected), `Kotlin`, and `Groovy`.
- Spring Boot:** Radio buttons for `3.3.0 (SNAPSHOT)`, `3.2.2 (SNAPSHOT)`, `3.2.1` (selected), `3.1.8 (SNAPSHOT)`, and `3.1.7`.
- Project Metadata:** Text input fields for `Group` (labcom.example), `Artifact` (lab1), `Name` (lab1), and `Description` (Demo project for Spring Boot).
- Dependencies:** A section with a `Spring Web` dependency (WEB) and a description: "Build web, including RESTful, applications using Spring MVC. Uses Apache Tomcat as the default embedded container." A button `ADD DEPENDENCIES... CTRL + B` is also present.

INSTALL JAVA ON WINDOW



COPY THE JAVA PATH AND ADD ON ENVIRONMENT VARIABLE



JAVA SUCCESSFULLY INSTALLED

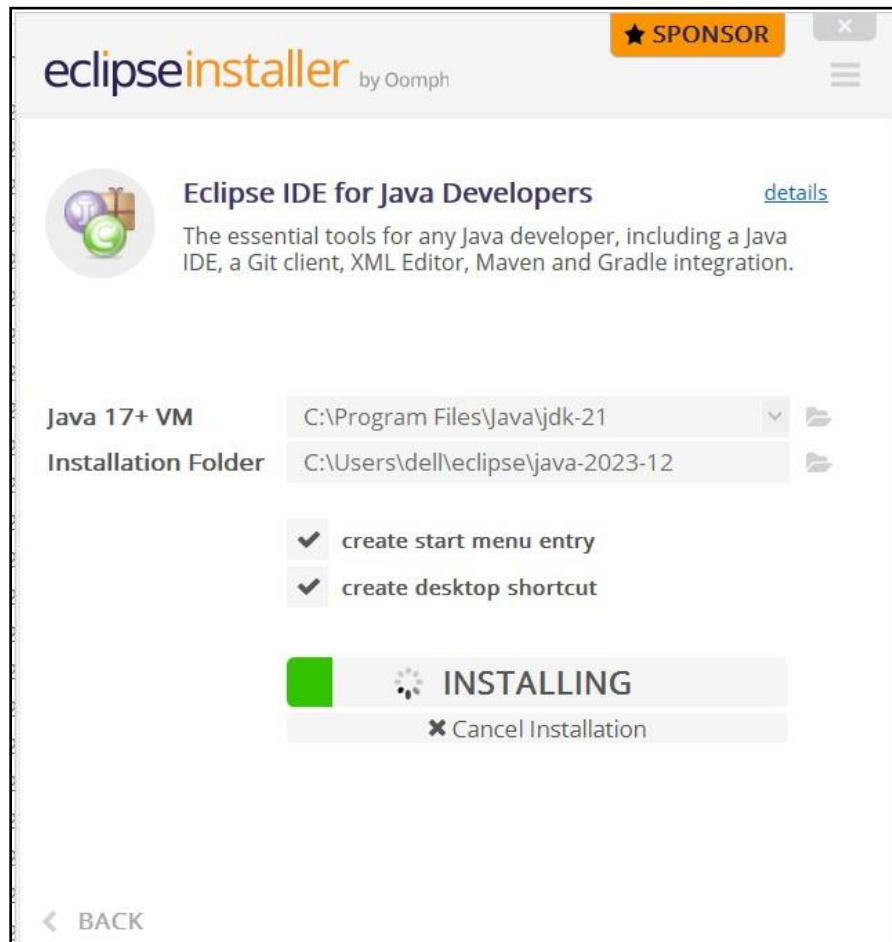
```
C:\> Command Prompt

Microsoft Windows [Version 10.0.19045.3803]
(c) Microsoft Corporation. All rights reserved.

C:\Users\dell>java --version
java 21.0.1 2023-10-17 LTS
Java(TM) SE Runtime Environment (build 21.0.1+12-LTS-29)
Java HotSpot(TM) 64-Bit Server VM (build 21.0.1+12-LTS-29, mixed mode, sharing)

C:\Users\dell>
```

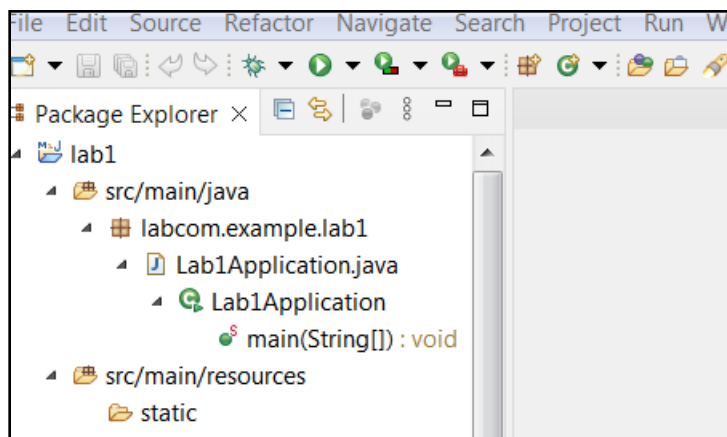
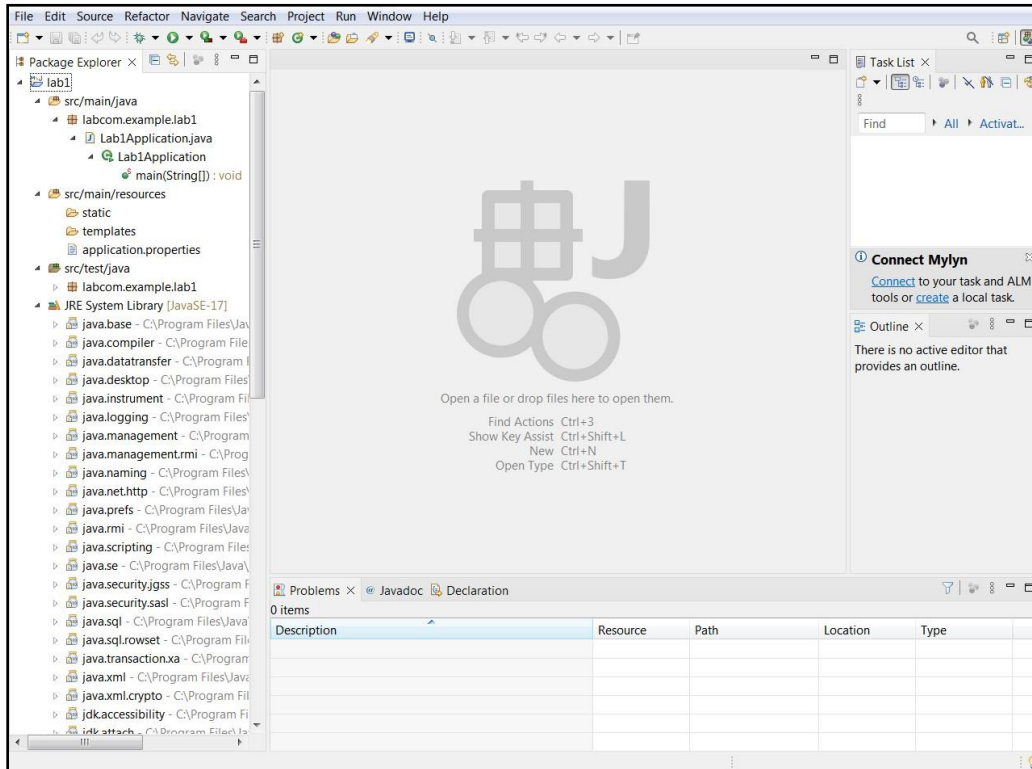
ECLIPSE INSTALLATION



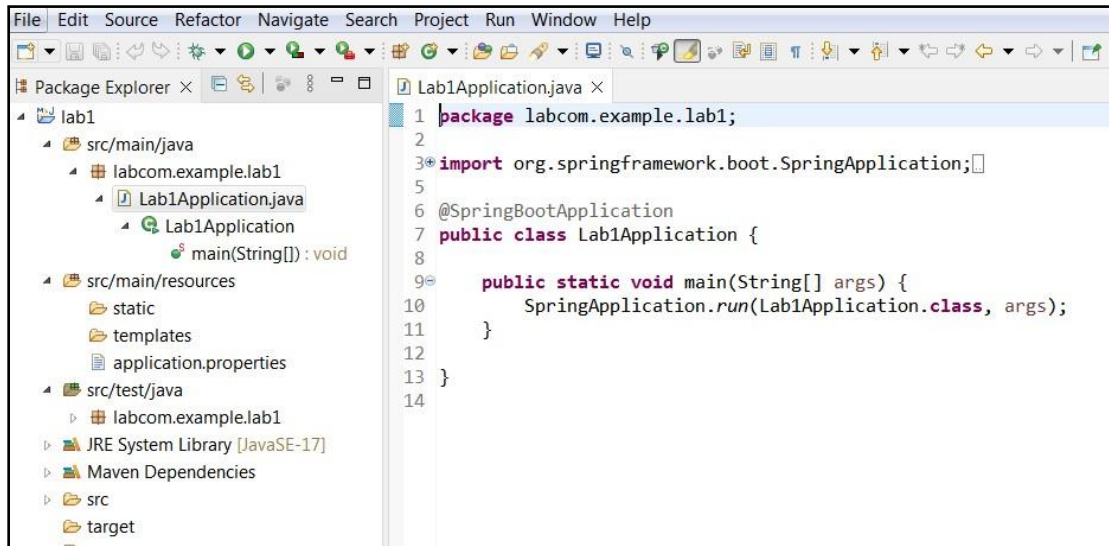
INSTALLATION COMPLETED



IMPORT THIS FOLDER INTO ECLIPSE

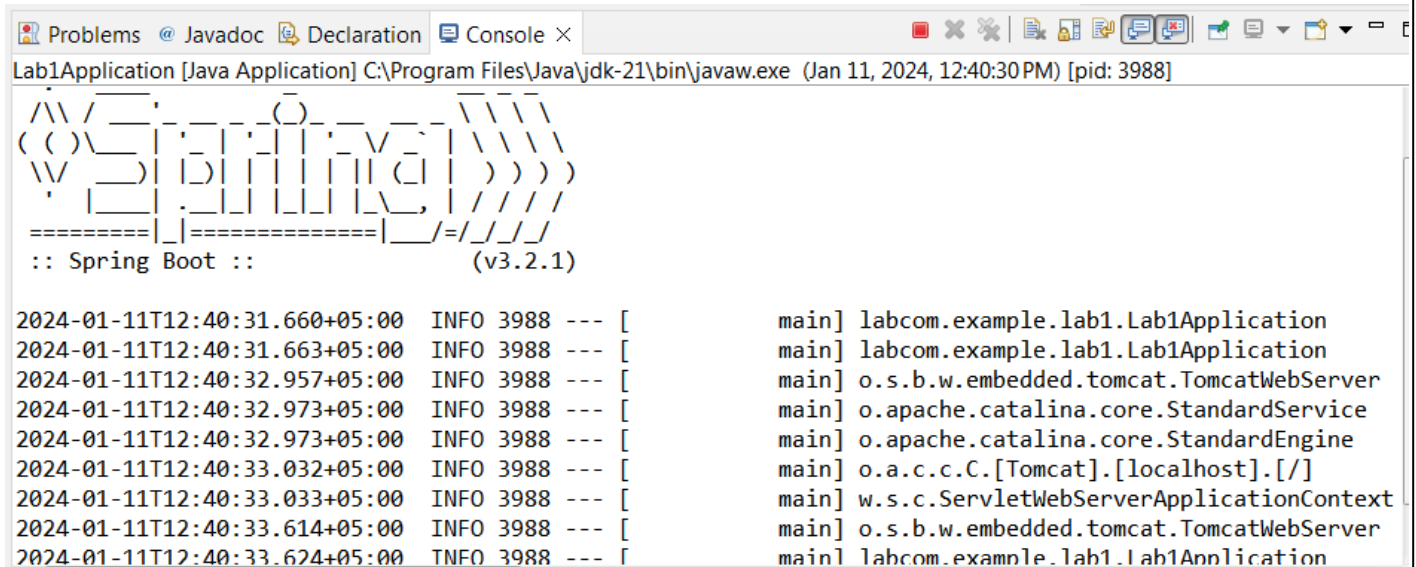


SPRING BOOT APPLICATION



```
1 package labcom.example.lab1;
2
3 import org.springframework.boot.SpringApplication;
4
5
6 @SpringBootApplication
7 public class Lab1Application {
8
9     public static void main(String[] args) {
10         SpringApplication.run(Lab1Application.class, args);
11     }
12 }
13
14
```

RUN THIS APPLICATION

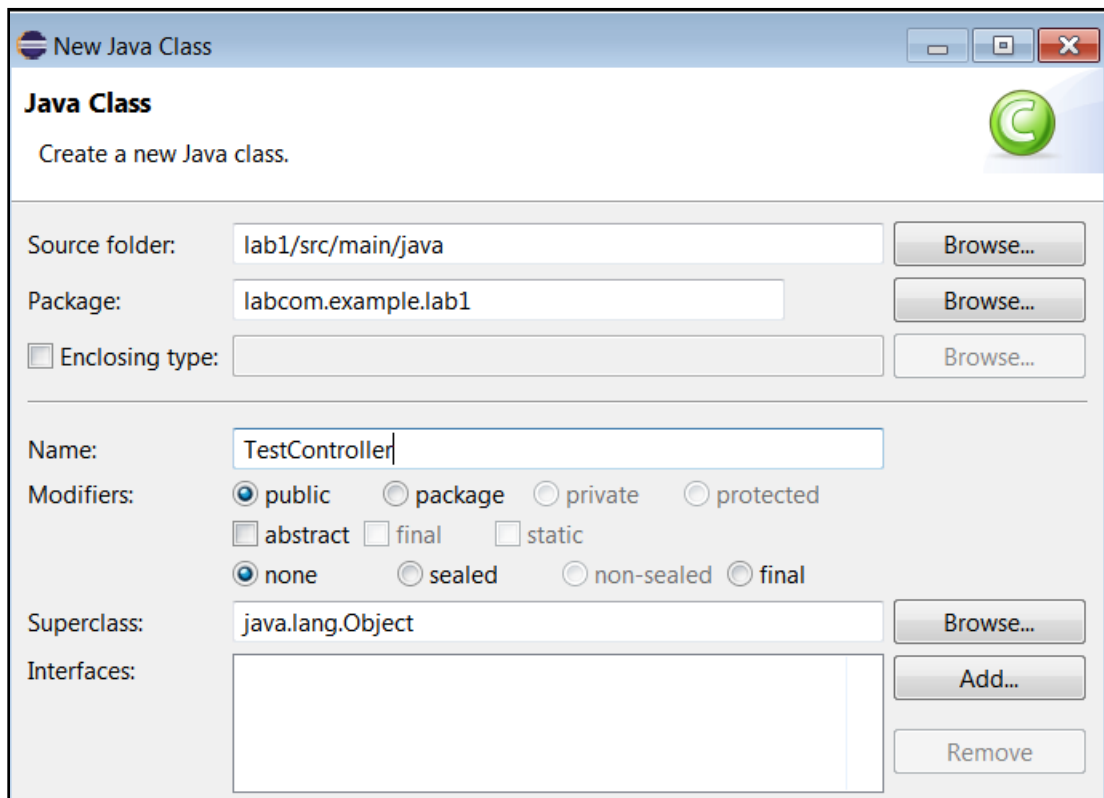


```
Lab1Application [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Jan 11, 2024, 12:40:30 PM) [pid: 3988]

:: Spring Boot :: (v3.2.1)

2024-01-11T12:40:31.660+05:00 INFO 3988 --- [main] labcom.example.lab1.Lab1Application
2024-01-11T12:40:31.663+05:00 INFO 3988 --- [main] labcom.example.lab1.Lab1Application
2024-01-11T12:40:32.957+05:00 INFO 3988 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer
2024-01-11T12:40:32.973+05:00 INFO 3988 --- [main] o.apache.catalina.core.StandardService
2024-01-11T12:40:32.973+05:00 INFO 3988 --- [main] o.apache.catalina.core.StandardEngine
2024-01-11T12:40:33.032+05:00 INFO 3988 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/]
2024-01-11T12:40:33.033+05:00 INFO 3988 --- [main] w.s.c.ServletWebServerApplicationContext
2024-01-11T12:40:33.614+05:00 INFO 3988 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer
2024-01-11T12:40:33.624+05:00 INFO 3988 --- [main] labcom.example.lab1.Lab1Application
```

CREATE A JAVA CLASS



New Java Class

Create a new Java class.

Source folder: lab1/src/main/java Browse...

Package: labcom.example.lab1 Browse...

☐ Enclosing type: Browse...

Name: TestController

Modifiers: ☒ public ☐ package ☐ private ☐ protected
☐ abstract ☐ final ☐ static
☒ none ☐ sealed ☐ non-sealed ☐ final

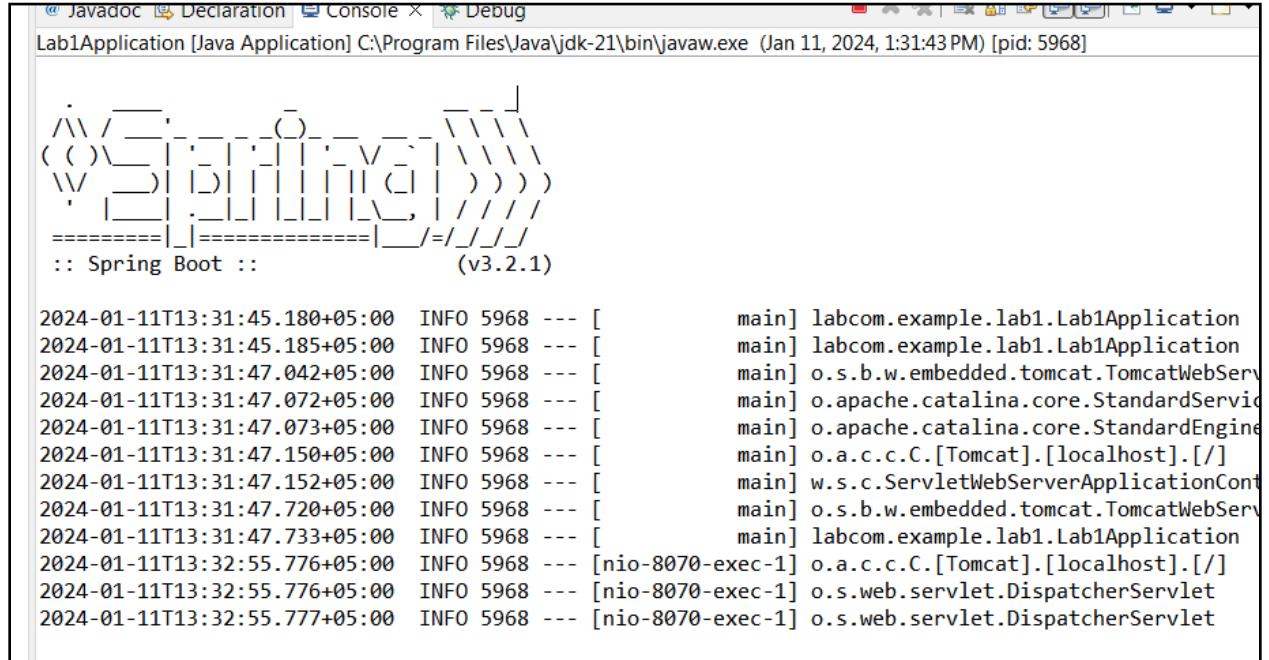
Superclass: java.lang.Object Browse...

Interfaces: Add...
Remove



```
1 package labcom.example.lab1;
2
3 import org.springframework.web.bind.annotation.RequestMapping;
4 import org.springframework.web.bind.annotation.RestController;
5
6 @RestController
7
8 public class TestController {
9     @RequestMapping("/hello")
10    public String hi()
11    {
12        return "Hello, This is java web application using spring initializer(mariam fatima)";
13    }
14
15 }
16
```

RUN THE APPLICATION



```
Lab1Application [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe (Jan 11, 2024, 1:31:43 PM) [pid: 5968]

:: Spring Boot :: (v3.2.1)

2024-01-11T13:31:45.180+05:00 INFO 5968 --- [main] labcom.example.lab1.Lab1Application
2024-01-11T13:31:45.185+05:00 INFO 5968 --- [main] labcom.example.lab1.Lab1Application
2024-01-11T13:31:47.042+05:00 INFO 5968 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServ
2024-01-11T13:31:47.072+05:00 INFO 5968 --- [main] o.apache.catalina.core.StandardServic
2024-01-11T13:31:47.073+05:00 INFO 5968 --- [main] o.apache.catalina.core.StandardEngine
2024-01-11T13:31:47.150+05:00 INFO 5968 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/]
2024-01-11T13:31:47.152+05:00 INFO 5968 --- [main] w.s.c.ServletWebServerApplicationCont
2024-01-11T13:31:47.720+05:00 INFO 5968 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServ
2024-01-11T13:31:47.733+05:00 INFO 5968 --- [main] labcom.example.lab1.Lab1Application
2024-01-11T13:32:55.776+05:00 INFO 5968 --- [nio-8070-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/]
2024-01-11T13:32:55.776+05:00 INFO 5968 --- [nio-8070-exec-1] o.s.web.servlet.DispatcherServlet
2024-01-11T13:32:55.777+05:00 INFO 5968 --- [nio-8070-exec-1] o.s.web.servlet.DispatcherServlet
```

COPY THE PORT NUMBER 8070 AND PASTE ON WEB BROWSER

```
Root WebApplicationContext: initialization completed in 1837 ms
Tomcat started on port 8070 (http) with context path ''
Started Lab1Application in 3.48 seconds (process running for 4.379)
```

SUCCESSFULLY RUN THIS APPLICATION

